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VALVULAR HEART DISEASE

ROLE OF PERCUTANEOUS BALLOON AORTIC VALVULOPLASTY FOR CALCIFIC AORTIC STENOSIS: UPDATED TECHNIQUE, INDICATIONS AND IMMEDIATE HAEMODYNAMIC RESULTS IN A HIGHLY EXPERIENCED CENTER

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Authors: *Akira Furuta, Karim Bejar, Helene Eltchaninoff, Christophe Tron, Brahim Baala, Matthieu Godin, Carlos Sanchez Giron, Bogdan Borz, Alain Cribier, Hôpital Charles-Nicolle, CHU de Rouen, Rouen, France*

Background: Management of aortic stenosis in elderly patients, especially when associated with complex comorbidities, has become an important issue. For these higher surgical risk patients, the role of percutaneous balloon aortic valvuloplasty (BAV) remains discussed. Overall improvements in techniques and hardware have made the procedure more efficient, fast and safe. We report the updated technique, indications and immediate results of BAV in our highly experienced center.

Methods: From May 2005 to Dec 2008, BAV was performed in 311 patients, 46% women, aged 81 ± 10years. BAV is performed under local anesthesia using the percutaneous retrograde approach. Through a 10 / 14F sheath, 20, 23, or 25mm size balloons (Cristal balloon, BALT / Z-MED II, NUMED) are advanced to the native valve over an extra-stiff wire. Initial balloon size is selected on annulus size, degree of valvular calcification and associated aortic regurgitation. Sequential increase in balloon size is often required. The goal is to increase the EOA by near 100% and decrease the mean gradient to < 25mmHg. Rapid right ventricular pacing (180 to 220bpm) is systematically used during balloon inflation. Percutaneous closure of the femoral approach is obtained with Angioseal / Perclose.

Results: The indications were as follows: bridge to AVR in severely depressed ventricular function (n=28), urgent BAV before non cardiac surgery (n=31), urgent BAV for cardiogenic shock (n=37), bridge to transcathter valve implantation (n=180), compassionate and other (n=35). EOA increased from 0.68 ± 0.25 to 1.14 ± 0.41cm2 ($p<0.001$) and mean gradient decreased from 44.0 ± 18.9 to 19.9 ± 10.8mmHg ($p<0.001$). Ten patients (3.2%) died: 4 during the procedure(1.3%). Twenty patients (6.4%) had non fatal in-hospital complications: 6 TIA or stroke (1.9%), 4 aortic regurgitation ≥ grade3 (1.3%), 4 complete A-V block (1.3%) and 6 surgical vascular complication (1.9%).

Conclusion: BAV has become much simpler and safer in spite of being applied in severely ill patients. This technique remains indicated in various situations, with an emerging indication in highly symptomatic / life threatened patients on the waiting list for transcatheter heart valve implantation.